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MILK AND MEAT IN THE FOOD SUPPLY.

Recent studies in nutrition have made clearer the importance of the mineral elements and the vitamines in the diet. In a recent report the committee on food and nutrition of the National Research Council discusses this matter, together with the question of the relative efficiency of the milch cow and the beef animal (in the production of milk and meat) in the conservation of proteins, fats, and carbohydrates and in the gathering and preparation of mineral elements and vitamines.

The following is contained in the report of the committee:

It has long been known, but perhaps never sufficiently emphasized, that the milch cow returns in the human food which she yields a very much larger share of the protein and energy of the food she consumes than does the beef animal. Dr. Armsby, probably the leading expert of this country on animal nutrition, has estimated (*Science*, Aug. 17, 1917) that of the energy of grain used in feeding the animal there is recovered for human consumption about 18 per cent in milk and only about 3½ per cent in beef.

In an official report on the food supply of the United Kingdom it is estimated that to produce 100 calories of human food in the form of milk from a good cow required animal food of 2.9 pounds starch equivalent; 100 calories of milk from a poor cow is estimated to require the consumption of 4.7 pounds; while to produce 100 calories of beef from a steer 2½ years old it is estimated that 9 pounds of starch equivalent in feed are required.

Stated in terms comparable with those used by Dr. Armsby, this would mean that the good milch cow returns 20 per cent of the energy value of what she consumes, the poor milch cow 12 per cent, and the good beef steer only 6 per cent. Although this estimate is more favorable to the beef steer than is that of Dr. Armsby, yet even in this estimate it will be seen that the poor cow is twice as efficient and the good milch cow more than three times as efficient as the beef steer in the conservation of energy in the food supply.

Considering the whole length of life of the animal, Prof. Wood, the leading English agricultural expert, estimates that the cow returns in milk, veal, and beef one-twelfth as much food as she has consumed, while the beef steer returns only one sixty-fourth. In other words, the cow is five times as efficient as the beef steer as a food producer when the whole life cycle of the animal is considered. Similarly it has been estimated by Cooper and Spillman (*Farmers' Bulletin*, No. 877, 1917, U. S. Department of Agriculture) that the crops grown on a given area may be expected to yield from four to five times as much protein and energy for human consumption when fed to dairy cows as when used for beef production. As Wood has very strikingly shown, the longer the time that the beef animals are fattened on grain the less economical the process becomes.

Quite recently Dr. Armsby has pointed out (*Yale Review*, January, 1920) that "the dairy cow shows the highest efficiency of any domestic animal, both as regards conversion of food and availability of the product for man."

Not only is the milch cow several times more efficient than the beef steer in the conservation of proteins, fats, and carbohydrates for human consumption, but in the gathering and preparation of mineral elements and vitamines she contrasts even more favorably with the beef animal. It is largely because of its richness in calcium and in fat-soluble vitamine that milk is the most efficient nutritional supplement to bread or other grain products.

Meat is strikingly poor in calcium and does relatively little to balance a diet consisting largely of bread or of other products of seeds. It does, of course, supplement the protein, but American dietaries would nearly always be adequate as regards protein even without the meat that they contain. On the other hand, dietaries containing little or no milk are very apt to be inadequate as regards calcium. Detailed analysis of the results of hundreds of American dietary studies shows that in practice the adequacy of the calcium intake depends more largely on the sufficiency of milk supply than upon any other factor, or, in fact, than upon all other factors combined.

The vitamines furnished by hay and grains, and thus consumed by cattle, are stored in the animals' tissues to only a limited extent, but they are transferred in relative abundance to the milk. Hence the vitamines of the coarse material of grain not directly available as human food are brought into form for man's use very efficiently through milk production and very inefficiently through the production of meat.

Thus, the result of recent studies in nutrition, which have made clearer the importance of the mineral elements and vitamines, is to emphasize strongly the great desirability of a more abundant milk supply, even if this should somewhat reduce the production and consumption of meat. Our present knowledge of nutrition justifies more fully than ever before the statement that "the dietary should be built around bread and milk," bread or other grain products being the foods which furnish the most nutriment for their cost (whether in money or in land and labor), and milk being by far the most efficient nutritional supplement to bread or other grain products. Therefore, somewhat more of our grain crops than is the case at present should come directly into human consumption to augment the bread supply; and of the grain fed to cattle more should be used for the production of milk and less for the production of meat.

In general, 10 pounds of grain may be expected to produce not over 1 pound of meat or about 3 quarts of milk. If the 3 quarts of milk cost the consumer more (because of greater labor cost in production), they are also certainly worth more to him. In so far as things as different in their nutritional properties as meat and milk can be compared, it is fair to say that 1 quart of milk is at least as great an asset in the family dietary as is 1 pound of meat. The per capita consumption of meat in the United States is so high that it might be reduced by one-third or even one-half with little or no nutritional loss, while a corresponding increase in milk consumption would certainly constitute a great improvement in the average American dietary. We are confident that a moderate shifting of emphasis from meat to milk will help in the normal evolution of American agriculture and improve the food economy and public health of the American people.

WORKERS NEEDED IN VENEREAL DISEASE CAMPAIGN.

Vacancies to be filled in the United States Interdepartmental Social Hygiene Board.

The United States Civil Service Commission announces open competitive examinations to fill positions under the United States Interdepartmental Social Hygiene Board, in connection with the Government campaign for the eradication of social diseases. The dates given are those set for the close of receipt of applications for these examinations.

		Salaries.
May 4.	Director of Bureau, Division, or Section of Protective Social Measures	$3,500 to $4,500
	Supervisor of Protective Social Measures	2,800 to 3,600
	Field Agent, Protective Social Measures	1,800 to 3,000
	Special Assistant Agent, Protective Social Measures	900 to 1,500
May 5.	Assistant Field Agent, Protective Social Measures	1,200 to 2,000

The entrance salary within the range stated will depend upon the qualifications of the appointee and the duty to which he is assigned. Both men and women, if qualified, may enter these examinations.

Detailed information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or from the Secretary of the United States Civil Service Board at the following cities: Boston, Mass., New York, N. Y., New Orleans, La., Honolulu, Hawaii, Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Calif., St. Louis, Mo., Administration Building, Balboa Heights, Canal Zone, or from the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R.